

Remarks

Applicants have concurrent with this Amendment filed a Request for Continued Examination, a Petition for Extension of Time, a Terminal Disclaimer and a Power of Attorney. By this Amendment, Applicants have amended claims 21-25 and 29 and have added new claims 37-40. The Examiner's comments and rejections in the final Office Action mailed on December 9, 2003 are addressed below.

The Examiner's Comments Regarding Applicant's Previous Argument

In the current final Office Action, the Examiner responded to Applicants' previous arguments distinguishing U.S. Pat. No. 5,467,791 ("Kato") from the claimed invention. Applicants previously argued that the transducers taught by Kato produce planar waves. Applicants based this argument in part on Kato's teaching as to the orientation of the transducers so that the waves impact the sides of the channel box and at right angles. The Examiner, however, has possibly misread this argument as distinguishing Kato from the claimed invention based on the wave shape at the channel box and not the wave shape generated by the transducers themselves. Based on this, the Examiner then concludes that the pending claims do not have any limitation regarding the wave shape at the channel box.

To the contrary, the teaching by Kato that the waves should impact the channel box at right angles is simply further support for the fact that Kato teaches the use of transducers that produce planar waves. In other words, if a different orientation is used for the transducers, the planar waves emanating from those transducers would not impact the channel box as desired (*e.g.*, at a right angle). Again, this required orientation in Kato (*i.e.*, that the transducers must be positioned appropriately so that the waves will impact the sides of the channel box as desired) illustrates that the transducers themselves produce planar waves, otherwise, the waves would not impact the channel box as necessary. Applicants are distinguishing Kato based upon the waves produced by the transducers themselves and not the wave shape at the channel box. The claims of the present application recite that the claimed transducers themselves each produce omnidirectional ultrasonic energy waves, which are the waves produced by the transducers, not the wave shape upon impact on the fuel—such transducers are not taught by Kato.

The Examiner, however, also concludes that the transducers of Kato *inherently* produce "omnidirectional ultrasonic waves" and that it is the physical orientation of the

transducers that result in the waves becoming planar waves by the time they reach the channel box (emphasis added). First, based on the description of Kato previously discussed regarding the orientation and use of the transducers, it is clear that the transducers of Kato produce planar waves and not omnidirectional ultrasonic waves. The Examiner has admitted as much in the Office Action mailed June 9, 2003, in which the Examiner stated “Either one of Kato et al. . . . discloses the applicant’s claims *except* . . . their production of omnidirectional ultrasonic energy waves.” (Office Action, June 9, 2003, page 5, emphasis added). Moreover, it cannot be concluded that interferences in the path of the energy wave that may cause a planar wave to be deflected in a different direction is the same as a transducer that itself produces an omnidirectional ultrasonic energy wave as recited in the claims. Even in this situation, the transducer is initially producing a planar wave, and, again, the claim limitation recites that the transducers each produce omnidirectional ultrasonic energy waves.

Further to this point, the Examiner’s attention is directed to the specification of the present invention at page 5, lines 10-18, wherein a discussion of uni-directional transducers is provided. This discussion clearly describes the conventional transducers, such as those taught by Kato, as producing a uni-directional or planar wave and that the present invention utilizes transducers that produce omnidirectional waves, which provide the benefit of deeper penetration into the fuel assembly for cleaning purposes, as opposed to using high energy uni-directional waves that may damage the fuel.

Therefore, Applicants do not believe that the Examiner’s arguments are sufficient to refute Applicants’ previous arguments as to why Kato teaches transducers that produce planar waves and that the prior art combinations made by the Examiner provide a prima facie showing of obviousness. Regardless, in light of the current claim amendments, Applicants will address the present rejections in the current final Office Action.

The 35 U.S.C. § 103(a) Rejections

The Examiner has rejected claims 21-26 and 29 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 5,467,791 (“Kato”) in combination with U.S. Pat. No. 5,200,666 (“Walter”). Applicants respectfully traverse this rejection, in light of the amendments to the claims.

The Examiner has not established a prima facie case of obviousness because the combination of Kato and Walter does not teach each and every limitation of the claimed invention. Kato teaches a *movable* housing holding ultrasonic transducers that traverses up and down the length of the fuel assembly along a support stand (col. 6, lines 1-6). The

housing in Kato is compact when compared to the length of the fuel assembly (Fig. 5), which only leaves room for two rows of ultrasonic transducers (Figs. 6-9). In order to remove the radioactive crud on the entire fuel assembly, Kato relies upon the housing moving up and down at a prescribed speed so that ultrasonic waves can be delivered uniformly across the fuel assembly (col. 6, lines 7-19).

In contrast, independent claim 21 has been amended to recite that the housing “has a length at least as long as the irradiated nuclear fuel assembly and is configured for mounting to a floor.” The assembly in Kato is neither as long as the fuel assembly nor is it configured to be mounted on a floor. Moreover, Walter only teaches a transducer and does not cure the deficiencies of Kato. By combining Kato and Walter, one would only arrive at a compact movable housing with a plurality of transducers that traverse the length of the fuel assembly to deliver the requisite ultrasonic waves to remove radioactive crud. Therefore, neither Kato nor Walter, alone or in combination, teach or suggest this limitation of independent claim 21.

With respect to claim 23, neither Kato nor Walter teach or suggest a base plate configured for attachment to a floor, as recited in claim 23. The Examiner has stated that Kato teaches a base plate attached to the housing; however, such is not a base plate configured to be attached to a floor.

With respect to new claims 37-40, independent claim 37 recites in part a housing that has a length at least as long as the irradiated nuclear fuel assembly and that in use is stationary relative to the irradiated nuclear fuel assembly. Kato only teaches a housing that moves during use to clean over the entire length of the fuel assembly. Neither does Walter teach a housing that is stationary relative to the fuel assembly in use. Therefore, neither of these references, alone or in combination, teach or suggest each and every element of this new independent claim.

Based on the foregoing, Applicants respectfully request withdrawal of the rejection of claims 21-26 and 29 and submit that new claims 37-40 are allowable over Kato and Walter, alone or in combination.

The Double Patenting Rejection

The Examiner has rejected claims 21-26 and 29-36 for double patenting, noting that this is the only rejection for claims 30-36. Accordingly, Applicants are submitting a terminal disclaimer under 37 C.F.R. 1.321(c) with this Amendment, to overcome this rejection. Therefore, Applicants respectfully request the withdrawal of this rejection.

Conclusion

In view of the above considerations, Applicants respectfully request a timely Notice of Allowance in this application. The Examiner is invited to call the undersigned attorney if a telephone call could help resolve any remaining items.

At this time, Applicants believe that no other fees are due other than those authorized in the concurrent submissions herewith. However, please charge any additional required fee to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310 (order no. 060825-0306 US). A copy of this sheet is enclosed.

Respectfully submitted,

Morgan, Lewis & Bockius LLP

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By:

David R. Owens

Reg. No.
40,756

Morgan, Lewis & Bockius LLP
3300 Hillview Avenue
Palo Alto, California 94304
(650) 493-4935